

D2 2. (Amended) The planar sensor element according to claim 1, wherein the layer plane is centered with respect to the sensor element.

Sub G1 3. (Four times amended) The planar sensor element according to claim 1, wherein the planar sensor element is formed using a sintering process, wherein, before the layer structure is sintered, the measuring cell layer includes at least two measuring cell layer foils and the covering layer includes at least one covering layer foil, the covering layer foil having a predetermined thickness, and wherein a total thickness of the at least two measuring cell layer foils is at least approximately equal to the predetermined thickness.

REMARKS

Claims 1 to 7 are now pending.

Please reconsider the present application based on the following.

Claims 1 to 7 were rejected under the second paragraph of 35 U.S.C. § 112 as indefinite. In this regard, claim 1 has been rewritten to change "electrically functioning layer" to --measuring cell layer-- as described, for example, on page 3, lines 7 to 9 of the Specification, and the phrase "electrically non-functioning" has been deleted. Claim 3 has been rewritten to conform to claim 1 as presented. It is therefore respectfully submitted that claims 1 to 7 are definite under 35 U.S.C. § 112, and withdrawal of the indefiniteness rejections is respectfully requested.

Claims 1 to 7 were rejected under 35 U.S.C. § 102(b) as anticipated by Schneider et al., U.S. Patent No. 5,529,677.

Claim 1 is directed to a planar sensor element for determining at least one gas component, and provides that the sensor element includes a layer structure, including a measuring cell layer, a covering layer and a heating element disposed between the measuring cell layer and the covering layer, in which the heating element generates a heating power, and in which a layer-shaped heating conductor is embedded in the heating element, and now provides that the layer-shaped heating conductor is arranged in a layer plane of the layer structure to obtain *at least an approximately homogeneous distribution of the heating power over a cross-section of the sensor element perpendicular to the layer structure*. These features are supported by lines 34 to 36 at page 1 of the Specification and the Figure.

To reject a claim under 35 U.S.C. § 102(b), the Office must demonstrate that each and every claim limitation is identically described in a single prior art reference. (See Scripps Clinic & Research Foundation v. Genentech, Inc., 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)).

The Schneider reference, which is assigned to the same assignee as the present application and which is disclosed in the Background Information of the present application, relates to a planar polarographic sensor for determining the lambda value of gas mixtures, and refers to three embodiments of the sensor, each of which is stated to include a heating unit C having a heater 27. In none of the three embodiments is the heater 27 arranged *between the measuring cell layer and the covering layer* to obtain at least an approximately homogeneous distribution of heating power over *a cross-section of the sensor element perpendicular to the layer structure* as in claim 1 as presented. That is, the reference does not identically describe (or even suggest) arranging the heating conductor so that heating power is homogeneously distributed over the sensor element (which encompasses more than the layer structure).

Also, the Final Office Action assumes that it may consider whichever layers apparently bound equally the heating conductor. It is respectfully submitted, however, that such an analysis ignores the fact that the terms and phrases of a claim are to be understood based on a reasonable interpretation of those terms or phrases in the context of the specification. In any event, claim 1 as presented makes plain that the “heating element [is] disposed between the *measuring cell layer* and the *covering layer*”, in which the “layer-shaped heating conductor is arranged in a layer plane of the layer structure to obtain an at least approximately homogeneous distribution of the heating power over a cross-section of the sensor element perpendicular to the layer structure”. It is respectfully submitted that any review of the reference as applied makes plain that this is not identically described in the reference, since the heater is not positioned between the measuring cell layer and the covering layer so as to provide the approximately homogeneous distribution of the heating power over the sensor element.

Since Schneider does not in any way identically describe each and every feature of claim 1 as presented, it is respectfully submitted that claim 1 is allowable.

With respect to dependent claims 2 to 7, it is respectfully submitted that claims 2 to 7 are allowable over Schneider for at least the same reasons as claim 1.

Claims 1 to 7 were rejected under 35 U.S.C. § 102(b) as anticipated by Mase et al., U.S. Patent No. 4,755,274.

The Mase '274 reference purports to relate to an electrochemical sensing element and device incorporating the same. In Figures 9 and 10, the heating element 40 is not arranged between the measuring cell and the covering layer to obtain at least an approximately homogenous distribution of heating power over a cross-section of the sensing element perpendicular to the layer structure as in claim 1 as presented. Moreover none of the other embodiments of the sensing element identically describe at least this feature of claim 1. Accordingly, it is respectfully submitted that Mase '274 does not anticipate claim 1 as presented.

With respect to dependent claims 2 to 7, it is respectfully submitted that claims 2 to 7 are allowable over Mase '274 for at least the same reasons as claim 1.

Claims 1 to 7 were rejected under 35 U.S.C. § 102(b) as anticipated by Mase et al., U.S. Patent No. 4,647,364.

The Mase '364 reference purports to relate to an electrochemical device. In Figures 16 and 17, the heating element 234 is simply not arranged between the measuring cell layer and the covering layer to obtain at least an approximately homogeneous distribution of heating power of a cross-section of the sensor element perpendicular to the layer structure as in claim 1 as presented. Accordingly, it is respectfully submitted that claim 1 is not anticipated by the Mase '364 reference, and is therefore allowable.

With respect to dependent claims 2 to 7, it is respectfully submitted that claims 2 to 7 are allowable over Mase '364 for at least the same reasons as claim 1.

Claims 1 to 7 were rejected under 35 U.S.C. § 103(a) as unpatentable over Schneider in view of Yamada, U.S. Patent No. 4,505,806, or Yamada, U.S. Patent No. 4,505,807.

As explained above, the primary Schneider reference relates to a planar polarographic sensor for determining the lambda value of gas mixtures. The secondary Yamada '806 and Yamada '807 references each purportedly relate to an oxygen sensor. Any review of the secondary references makes plain that they simply do not cure the critical deficiencies of the primary reference, namely they do not describe or suggest the features missing from the primary reference, which includes arranging the heating conductor between the measuring cell layer and the covering layer to obtain at least an approximately homogeneous distribution of heating power of a cross-section of the sensor element perpendicular to the layer structure.

It is therefore respectfully submitted that claim 1 is allowable over the references as applied, as are dependent claims 2 to 7.

To reject a claim as obvious under 35 U.S.C. § 103, the prior art must disclose or suggest each claim element and it must also suggest combining the elements in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990)), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). Thus, the “problem confronted by the inventor must be considered in determining whether it would have been obvious to combine the references in order to solve the problem.” (See Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 679 (Fed. Cir. 1998)). It is respectfully submitted that, as discussed above, the references relied on, whether taken alone or combined, do not suggest in any way modifying or combining the references so as to address the problems that are met by the presently claimed subject matter, namely arranging or positioning the heating conductor between the *measuring cell* and the *covering layer*

As further regards the obviousness rejections, the cases of In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), also make plain that the Final Office Action’s generalized assertions that it would have been obvious to modify the references relied upon do not properly support a § 103 rejection. It is respectfully suggested that those cases make plain that the Final Office Action reflects a subjective “obvious to try” standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .

....

Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art. . . .

Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].

In re Jones, 21 U.S.P.Q.2d at 1943 & 1944 (citations omitted; italics in original).

That is exactly the case here since it is respectfully submitted that the present Final Office Action offers no evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify a reference in view of another reference to provide the claimed subject matter of the claims.

More recently, the Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a “technologically simple concept” -- which is not the case here, there still must be some finding as to the “specific understanding or principle within the knowledge of a skilled artisan” that would motivate a person having *no* knowledge of the claimed subject matter to “make the combination in the manner claimed”, stating that:

In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. *With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed.* In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper *prima facie* case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

(See In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (italics added)). Here again, it is believed that there have been no such findings.

Accordingly, there is no evidence that the references relied upon, whether taken alone, combined or modified, would provide the features and benefits of claim 1. It is therefore respectfully submitted that claim 1 is allowable for these reasons.

Claims 2 to 7 depend from claim 1, are therefore allowable for the same reasons as claim 1.

Conclusion

In view of all of the above, it is believed that the rejections of claims 1 to 7 have been obviated, and that all of currently pending claims 1 to 7 are allowable. It is therefore respectfully requested that the rejections be reconsidered and withdrawn, and that the present application issue as early as possible.

Respectfully submitted,

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AMENDMENT VERSION WITH MARKINGS

Please amend the claims without prejudice as follows:

1. (Four Times Amended) A planar sensor element for determining at least one gas component, comprising:

a layer structure including:

[an electrically functioning] a measuring cell layer;

[an electrically non-functioning] a covering layer;

a heating element disposed between the [electrically functioning] measuring cell layer and the [electrically non-functioning] covering layer and generating a heating power, a layer-shaped heating conductor being embedded in the heating element,

wherein the layer-shaped heating conductor is arranged in a layer plane of the layer structure to obtain an at least approximately homogeneous distribution of the heating power over a cross-section of the [layer structure] sensor element perpendicular to the layer structure.

2. (Amended) The planar sensor element according to claim 1, wherein the layer plane is centered with respect to the [layer structure] sensor element.

3. (Four times amended) The planar sensor element according to claim 1, wherein the planar sensor element is formed using a sintering process, wherein, before the layer structure is sintered, the [electrically functioning] measuring cell layer includes at least two [function layer-side] measuring cell layer foils and the [electrically non-functioning] covering layer includes at least one [cover foil-side] covering layer foil, the [cover foil-side] covering layer foil having a predetermined thickness, and wherein a total thickness of the at least two [function layer-side] measuring cell layer foils is at least approximately equal to the predetermined thickness.